

Amendments Pursuant to 37 C.F.R. 1.121

IN THE CLAIMS:

Please cancel and replace claim 1 with new claim 1 and amend claims 2, 3 and 5 -

7. Claims 1 - 7 remain in the application.

1. (New - replacing canceled claim 1) A waveguide, comprising:

a dielectric structure of laminated materials, said dielectric structure of laminated materials comprising:

a first horizontal layer of dielectric material having a first side and a second side;

a second horizontal layer of dielectric material stacked substantially parallel to and adjacent to said second side of said first horizontal layer of dielectric material, forming a multilayered stack of dielectric material, said second horizontal layer of dielectric material having a dielectric constant less than 30 and less than the dielectric constant of said first layer of dielectric material;

a first electrode adjacent to said first side of said first horizontal layer of dielectric material;

a second electrode adjacent to said second side of said first horizontal layer of dielectric material and therefore between said first and said second horizontal

layer of dielectric material, said first and second electrodes for applying a controllable voltage across said first horizontal layer of dielectric material;

an RF input, for inputting an RF signal into said waveguide; and

an RF output, for outputting said RF signal from said waveguide.

2. (Currently Amended) A waveguide as recited in claim 1, further comprising:

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means for applying a controllable voltage across said second dielectric layer material, thereby controlling the dielectric constant of said second dielectric material layer.

3. (Currently Amended) A waveguide as recited in claim 1, further comprising:

a plurality of additional layers of dielectric material positioned substantially in parallel with said first and second layers of dielectric material, forming a larger multi-layer stack of dielectric material, said additional layers of dielectric material ~~can include~~ at least one layer having a tunable dielectric constant.

4. (Original) A waveguide as recited in claim 1, wherein said first layer of dielectric material has a dielectric constant greater than about 100 and a loss tangent less than about 0.01.

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5. (Currently Amended) A waveguide as recited in claim 1, wherein said second layer of dielectric material is selected from the group consisting of a ~~Ba_{1-x}Sr_xTiO₃~~ ~~Sr_xTiO₃~~ Ba_{1-x}Sr_xTiO₃ composite where x ranges from zero to one, alumina, mica, and air.

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6. (Currently Amended) A waveguide as recited in claim 1, wherein said first and second layers of dielectric material are substantially rectangular slabs lying in planes that are oriented parallel to a direction of propagation of a radio frequency signal through the waveguide.

7. (Currently Amended) A waveguide as recited in claim 1, wherein said first layer of dielectric material is selected from the group consisting of BSTO, BSTO-MgO, ~~BSTO-MgAl₂O₄~~ BSTO-MgAl₂O₄, BSTO-CaTiO₃, BSTO-MgTiO₃, and BSTO-MgSrZrTiO₆.

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